IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

MARTIN, T. et al. Atty. Ref.: 124-909; Confirmation No. 4032

Appl. No. 10/009,530 TC/A.U. 1765

Filed: January 22, 2002 Examiner: Anderson

For: METHOD OF FABRICATING A SEMICONDUCTOR DEVICE

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April 26, 2004

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO FINAL REJECTION

This responds to the Official Action dated January 30, 2004 in which claims 6 and 7, the only claims in the application are finally rejected.

Responsive to the examiner's query in item 2 of the Official Action, counsel is advised that the subject matter of the claims was commonly owned at the time the inventions covered by them were made.

Claims 6 and 7 are rejected as being unpatentable over a combination of one U.S. patent and two literature articles. The reasons this rejection is thought to be appropriate are set out on pages 3 and 4 of the Official Action, yet missing from this discussion is an indication or direction in any of the cited documents that their disclosures should be combined. In fact, logic and experience in this art indicate quite the opposite.

The prior art relied on by the examiner can be summarized as follows:

Document	Disclosure
Goodhue	CBE plus temperature gradients to get tapered epitaxial layers.
Moerman	*Deposited* SiO_x mask plus MOCVD/MBE for tapering (*Uncoated*) Si mechanical shadow mask plus MOVCVD/MBE for tapering.
Colas	*Deposited* SiO_x mask plus MOCVD for producing tapered layers.

Regarding the examiner's objections on the ground of obviousness, the combination of CBE and shadow masking for producing tapered layers is not obvious from the prior art cited. Goodhue involves CBE, and Moerman discusses (uncoated) mechanical shadow masks for use in MOCVD. However, there is no indication in Goodhue that any sort of masking might be used in place of the temperature gradients, and, conversely, there is no suggestion in Moerman that mechanical shadow masking could be used in a CBE process. There is no suggestion to combine the teachings of Moerman and Goodhue, either in Goodhue or Moerman, or anywhere else.

It is well-established that before a conclusion of obviousness may be made based on a combination of references, there must have been a reason, suggestion, or motivation to lead one of ordinary skill in the art to combine those references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617-18 (Fed. Cir. 1999).

There is nothing in any of the cited references to suggest the desirability of the combination or modification in the manner indicated by the Examiner.

Thus, the mere fact that references can be combined or modified (and Applicants believe they cannot be) does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); MPEP § 2143.01. Hence, the Examiner's attempt to combine the cited references alone without any suggestion in the references of the desirability of the modification is improper and should be withdrawn.

Even assuming arguendo if the teachings of Goodhue and Moerman were to be combined, a process according to applicants' claims would not result, because Moerman does not mention oxide-coated shadow masks.

As to the use of an oxide-coated shadow mask in CBE, this is also inventive. Moerman and Colas discuss use of an SiO_x *deposited* mask, for use in MOCVD and MBE, to grow tapered layers. However, Colas and Moerman do not mention CBE as a growth process at all. Therefore it cannot be obvious, on the basis of the cited art, to oxide-coat a mechanical shadow mask for use in CBE.

As explained above, CBE is quite different from MOCVD and MBE. CBE involves high growth temperatures and is extremely sensitive to oxygen contamination, even at the level of a few parts per billion.

The present invention therefore overcomes a technical prejudice because a skilled person would not have regarded the use of an oxide-coated mechanical mask as suitable for use with CBE.

For the above reasons it is respectfully submitted that applicants' claims define inventive subject matter. Reconsideration and allowance are solicited.

Respectfully submitted,

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By: _____

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